

REMARKS

Claims 4-11, 15-19, 23, 27, 29, 32-35 and 38-40 have been amended in order to more particularly point out, and distinctly claim the subject matter to which the Applicants regard as their invention. The applicants respectfully submit that no new matter has been added. It is believed that this Amendment is fully responsive to the Office Action dated **February 20, 2003**.

Objection to the Drawings

The Examiner has indicated that Figure 34 should be designated by a legend such as "Prior Art". Via this amendment a replacement sheet labeled "Prior Art" is provided for Figure 34. Entry of this replacement for Figure 34 is respectfully requested.

Claim Rejections under 35 USC §112

Claims 15-32, 35 and 38 are rejected under 35 USC §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Taking the Examiner's comments into consideration, the claims have been amended. Therefore, withdrawal of the rejection of Claims 15-32, 35 and 38 under 35 USC §112, second paragraph, is respectfully requested.

Claim Rejections under 35 USC §102

Claims 1, 4-7, 10-12, 15, 16, 28, 32-34, 38-39 and 41 are rejected under 35 USC §102(b) as being anticipated by Nakabayashi (U.S. Patent No. 5,675,672).

Nakabayashi describes a two-dimensional linker that is able to take a document (32) that is partitioned and scanned by a first scan (28) and a second scan (30). An optical character reader (12) is able to recognize the ASCII characters in the two documents and saves each into a first memory (14) and a second memory (16). An aligner (20) identifies the duplicate characters in each document and eliminates the duplicates from one of the documents. A linking means then takes the two documents and forms a single documents stored in a third memory (26). As illustrated in figure 4, the aligner (20) searches for duplicated phrases. In addition, as illustrated in figure 5, the aligner (20) may search for duplicated columns of characters.

Nakabayashi discloses reading to document files by and OCR device, and converting the documents into character codes corresponding to the read character images and merging the two documents into one document by deleting lines with the same character codes.

The present invention is a document processing device in which a large document may be partitioned into a number of regions which are scanned in separately. An overlapping detecting unit detects overlapping sections of the document images by comparing positions and sizes of character regions in the document images.

Examiner is apparently of the opinion that partitioning into a plurality of regions by the region partitioning unit as recited in Claims 15, 16 and 32-34 is the same as partitioning into a plurality of regions in Matsuda or Miyamoto. This assertion is respectfully traversed.

As set forth in the specification of the present invention, the preferred embodiment of the present invention partitions a plurality of documents, including graphics, read by a scanner, respectively into a plurality of vertical and horizontal regions, and extracted line images containing

only character images from the respective regions. Then, the preferred embodiment can detect overlapping position between documents, including graphics more accurately by specifying regions containing a lot of line images as low graphics-ratio regions and making a comparison between character regions of the line images in the respective regions.

Claims 15-17, 29, 32-34, 38 and 39 patentably distinguished over the prior art relied upon by reciting, as exemplified by Claims 15,

“A document image processing device comprising: region partitioning unit partitioning first and second document images which are partitioned and read, respectively into a plurality of vertical and horizontal regions; line image extracting unit extracting line images containing only character images from the plurality of regions partitioned by said region partitioning unit; overlapping detecting unit detecting an overlapping position between the first and second document images, based on positions of character regions whose matching degrees are high by making a comparison between a character regions of a line image in a region, containing a lot of line images, of a plurality of regions in the first document extracted by said line image extracting unit and a character region of a line image in a corresponding region of the second document; and image merging unit merging first and second document images at the overlapping position detected by said overlapping detecting unit.”
(Emphasis Added)

Therefore, withdrawal of the rejection of Claims 1, 4-7, 10-12, 15, 16, 28, 32-34, 38-39 and 41 under 35 USC §102(b) as being anticipated by Nakabayashi (U.S. Patent No. 5,675,672) is respectfully requested.

Claims 1, 4, 6-7, 11, 12, 15, 16, 32-34, 38-39 and 41 are rejected under 35 USC §102(a) as being anticipated by either one of the following two references: Japanese Published Patent Application 11-196255 to Matsuda or Japanese Published Patent Application 11-66234 to Miyamoto et al.

Matsuda describes an image processing method in which character codes and their positions are detected at the borders of images. Based upon these characters detected and their positions, the overlap between images is determined. The images are then merged based upon the overlap detected.

Miyamoto describes a method for merging images based upon circumscribing a rectangle around an overlapping character pattern. The overlapping images are then merged.

Examiner is apparently of the opinion that partitioning into a plurality of regions by the region partitioning unit as recited in Claims 15, 16 and 32-34 is the same as partitioning into a plurality of regions in Matsuda or Miyamoto. This assertion is respectfully traversed.

As set forth in the specification of the present invention, the preferred embodiment of the present invention partitions a plurality of documents, including graphics, read by a scanner, respectively into a plurality of vertical and horizontal regions, and extracted line images containing only character images from the respective regions. Then, the preferred embodiment can detect overlapping position between documents, including graphics more accurately by specifying regions containing a lot of line images as low graphics-ratio regions and making a comparison between character regions of the line images in the respective regions.

Claims 15-17, 29, 32-34, 38 and 39 patentably distinguished over the prior art relied upon by reciting, as exemplified by Claims 15,

“A document image processing device comprising: region partitioning unit partitioning first and second document images which are partitioned and read, respectively into a plurality of vertical and horizontal regions; line image extracting unit extracting line images containing only character images from the plurality of regions partitioned by said region partitioning unit; overlapping detecting unit detecting an overlapping position between the first and second document images, based on positions of character regions whose matching degrees are high by making a comparison between a character regions of a line image in a region, containing a lot

of line images, of a plurality of regions in the first document extracted by said line image extracting unit and a character region of a line image in a corresponding region of the second document; and image merging unit merging first and second document images at the overlapping position detected by said overlapping detecting unit.”
(Emphasis Added)

Therefore, withdrawal of the rejection of Claims 1, 4, 6-7, 11, 12, 15, 16, 32-34, 38-39 and 41 under 35 USC §102(a) as being anticipated by either one of the following two references: Japanese Published Patent Application 11-196255 to Matsuda or Japanese Published Patent Application 11-66234 to Miyamoto et al. is respectfully requested.

Claim Rejections under 35 USC §103

Claims 29-31, 35 and 40 are rejected under 35 USC §103(a) as being unpatentable over Nakayabashi.

Claim 29 patentably distinguishes over the prior art relied upon, by reciting,

“A document image processing device, comprising: region partitioning unit partitioning first and second document images which are partitioned and read, into a plurality of vertical and horizontal regions; line image extracting unit extracting line images containing only character images from the plurality of regions partitioned by said region partitioning unit; overlapping detecting unit detecting an overlapping position between the first and second document images based on positions and sizes of character regions whose matching degrees are high by making a comparison between character regions of a line image in a region containing a lot of line images, of a plurality of regions in the first document extracted by said line image extracting unit and a character region of a line image in a corresponding region of the second document; image merging unit merging the first and second document images at the overlapping position detected by said overlapping detecting unit; and setting unit allowing a setting of whether or not to automatically merge the plurality of document images on a display screen.” (Emphasis Added)

Therefore, withdrawal of the rejection of Claims 29-31, 35 and 40 under 35 USC §103(a) as being unpatentable over Nakayabashi is respectfully requested.

Amendment under 37 CFR §1.111
SAKAI, Kenichiro

U.S. Patent Application Serial No. 09/475,991
Attorney Docket No. 991522

Conclusion

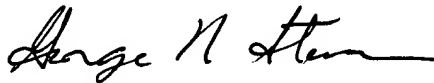
In view of the aforementioned amendments and accompanying remarks, claims, as amended, are in condition for allowance, which action, at an early date, is requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicants undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

ARMSTRONG, WESTERMAN & HATTORI, LLP



George N. Stevens
Attorney for Applicants
Reg. No. 36,938

GNS/anp
Atty. Docket No. 991522
Suite 1000
1725 K Street, N.W.
Washington, D.C. 20006
(202) 659-2930



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